

ZEITRAUM

BUTTON Panel

Design by Formstelle, 2022



Furniture Footprint

BUTTON Panel

Design by ZEITRAUM, 2022

BUTTON Panel – the upholstered panel with fabric or leather covered buttons.

The buttoned upholstered panel serves as an upholstered headboard for a bed or as a soft backrest for a bench. It is available in two heights. The panel is mounted on the wall with a bar.

ZEITRAUM furniture meets the highest quality and environmental standards and is primarily made of solid wood. All the materials we use come from responsible manufacturing and are for the most part sourced directly from Germany. The following describes the product: BUTTON PANEL. ZEITRAUM products can contribute to a good rating in certification programmes for sustainable buildings, such as LEED. For more information, please do not hesitate to contact us at any time.

Product details

| | | | | |
|------------------|-----------|--|--|--|
| Product category | Panel | | | |
| Weight | ca. 29 kg | | | |

Environmental details

| | |
|---|---|
| Recycled content/ renewable raw materials | ca. 85 % renewable materials |
| Recyclability | ca. 80 % wood based materials (thermal utilisation) ca. 7 % textiles / ca. 9 % leather |
| Repairability | Moderately repairable |

Removeable cover

| | |
|---------|----|
| Leather | No |
| Fabric | No |

Manufacturing details

| | | | | |
|-------------------|------------------|--------------------------|---------------------|------------------------|
| Furniture element | Production site | Production partner since | Visited by ZEITRAUM | Code of Conduct signed |
| Upholstery | Bavaria, Germany | 1999 | Yes | Yes |

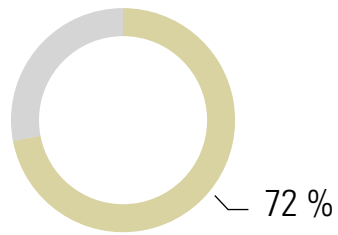
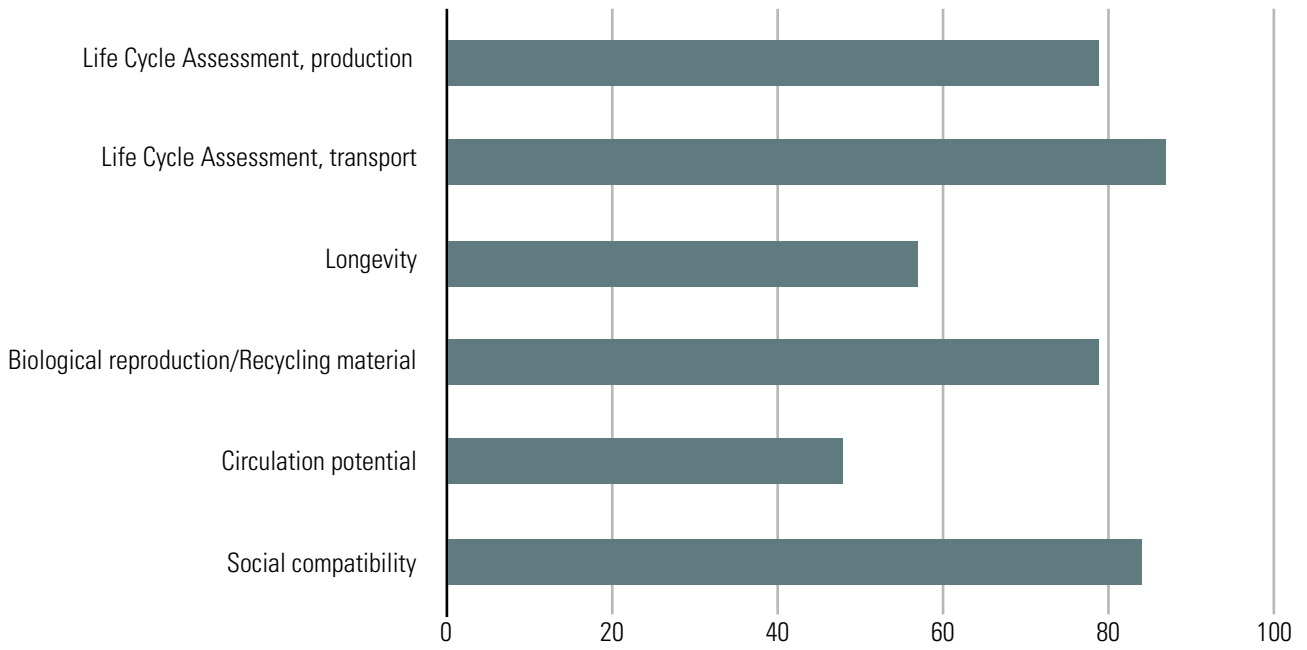
Packaging

| | |
|----------|-----|
| Flatpack | Yes |
|----------|-----|

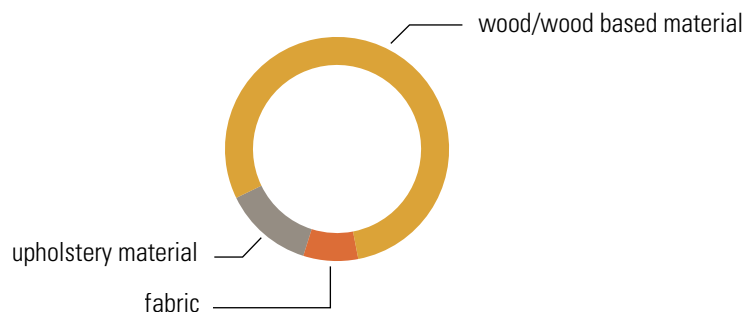
Warehouse

| | |
|---------|---------------|
| Country | Federal state |
| Germany | Bavaria |

BUTTON Panel, 172, fabric



- wood/wood based material
- fabric
- upholstery material



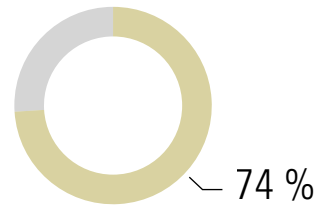
▬ Flat pack

| BUTTON Panel, 172, fabric | Material/Product rating | | | | | |
|---|-------------------------|---------|---------------------|-----------------|-----------------|--------------------|
| | Chipboard | Plywood | Fabric, Rohi, Opera | PUR, Upholstery | Polyester fiber | Weighted rating, % |
| Life Cycle Assessment, production | 9 | 6,33 | 5,33 | 3 | 9 | 79,01894 % |
| Life Cycle Assessment, transport | 9,5 | 9 | 5 | 6,5 | 6,5 | 87,4165 % |
| Longevity | 5 | 9 | 9 | 5 | 8 | 56,879 % |
| Biological reproduction/ Recycling material | 9 | 9 | 10 | 0 | 0 | 78,958 % |
| Circulation potential | 4 | 4 | 8 | 7 | 10 | 47,606 % |
| Social compatibility | 8 | 9 | 10 | 9 | 9 | 83,519 % |
| Average rating, $\bar{\sigma}$ | 7,416 | 7,721 | 7,888 | 5,083 | 7,083 | Total weight |
| Share in kg | 20,88 | 2,32 | 2,1 | 3 | 0,8 | 29,1 |
| Share in % | 71,75 % | 7,97 % | 7,21 % | 10,3 % | 2,74 % | |
| Weighted rating | 5,32 | 0,615 | 0,568 | 0,523 | 0,194 | |
| Product rating in % | 72,2 | | | | | |

| Packaging | Material/Product rating | | |
|--|-------------------------|---------|--------------------|
| | Cardboard | PE foil | Weighted rating, % |
| Life Cycle Assessment, production | 10 | 5 | 97,16 % |
| Life Cycle Assessment, transport | 9 | 6 | 88,293 % |
| Longevity | 4 | 0 | 37,732 % |
| Biological reproduction/Recycling material | 6 | 0 | 56,598 % |
| Circulation potential | 10 | 10 | 99,99 % |
| Social compatibility | 10 | 9 | 99,424 % |
| Average rating, $\bar{\sigma}$ | 8,166 | 5 | Total weight |
| Share in kg | 5 | 0,3 | 5,3 |
| Share in % | 94,33 % | 5,66 % | |
| Weighted rating | 7,702 | 0,283 | |
| Product rating in % | 79,85 | | |



1 Chipboard, P2



Tab. 1 A: Material data sheet, chipboard, P2, general¹

| | |
|--------------------|---|
| Material group | Natural-synthetic material; wood-based materials; chipboard; P2 |
| Name | Chipboard, Particleboard (GB, US); Flachpressplatte; Spanplatte (D) |
| Short name | FPY |
| Manufactured in | Czech Republic |
| Origin of the wood | Europe |
| Version | P2 |
| Use | For furniture and interior fittings in dry areas, statically non-load-bearing |

¹ KALWEIT, A., a.o. (2012) - Handbook of Technical Product Design, Materials and Manufacturing - Decision Bases for Designers and Engineers (2) Berlin: Springer-Verlag Berlin Heidelberg GmbH

Tab. 1 B: Material data sheet, chipboard, P2, specific^{2,3}**General description** (manufacturer spec.)

| | | |
|----------------------------|---|--|
| Certifications/Information | FSC, PEFC, E1 (EU) | |
| Emission class | E1 | |
| Fire resistance | Fire behavior: according to DIN EN 13986: D-s1, d0, normal flammability, no smoke development, no burning dripping/falling off | |

General description (general)

| | | |
|-----------|---|--|
| Length | n.a. | |
| Wide | n.a. | |
| Thickness | n.a. | |
| Color | Mostly light white yellowish rotary cut veneer | |
| Texture | Wood chips of different sizes, dense top layers and looser middle layer are characteristic of a particleboard | |

Basic materials/auxiliary materials (general)

| | | |
|-----------------|---------|--|
| Fresh wood | 15-25 % | |
| Industrial wood | 60-70 % | |
| Waste wood | 8-15 % | |
| Binder | 6-10 % | |

Life cycle assessment data particleboard, average (GER) 9

| | | |
|--|-----------------------|---|
| Resource input per kg | A1-A3 | |
| Total non-renewable primary energy (PENRT) | 5,303 MJ | 9 |
| Use of freshwater resources (FW) | 0,0011 m ³ | 8 |

| | | |
|---|--------------------------------|----|
| Environmental impact per m³ | A1-A3 | |
| Global Warming Potential (GWP) | -1,23 Kg CO ₂ -eqv. | 10 |

Environmental impact Transport, per 1000 kgkm (620-720 kg/m³) 9,5**Production site: Czech Republic/ZEITRAUM**

| | | |
|--|--------------------------------|---|
| Truck - ca. 1000 km | A4 | 9 |
| Total non-renewable primary energy (PENRT) | 1208 MJ | |
| Use of freshwater resources (FW) | 0,06388 m ³ | |
| Global Warming Potential (GWP) | 89,69 Kg CO ₂ -eqv. | |

Main raw material origin: Central Europe/production site

| | | |
|----------------------------|----|----|
| Truck - ca. 1000 km | A4 | 10 |
|----------------------------|----|----|

² BMI 2021: Oekobaudat. Database <https://www.oekobaudat.de/no_cache/en/database/search.html> Accessed, on 10/27/2021

³ WEZEL, O. (2019) - Strength properties of wood-based materials according to DIN EN 622 <<http://www.tischler-ole-welzel.de/Holzwerkstoffe/Faserplatten%20nach%20DIN%20EN%2013986.pdf>> Accessed, on 09/03/2019

| | | |
|--|-----------------------------|--|
| Total non-renewable primary energy (PENRT) | 1208 MJ | |
| Use of freshwater resources (FW) | 0,06388 m ³ | |
| Global Warming Potential (GWP) | 89,69 CO ₂ -eqv. | |

Sustainability Assessment

| | | |
|---|---------------------------|-------------|
| Longevity | Durable (10 - 20 years) | 5 |
| Biological reproduction/ recycled material | 90 % | 9 |
| Circulation potential | Only thermally recyclable | 4 |
| Socially compatible | Yes | 8 |
| Total average rating | | 7,41 |

Processing

| | | |
|-------------------|---|--|
| Mechanical | Very good; can be sawed, drilled and milled with common machines | |
| Adhesion | Very good | |
| Surface finishing | Good; varnishable; coating possible, narrow surfaces must be provided with a narrow surface coating | |
| Durability | By changing the synthetic binder or adding further additives, an increase in fire resistance, resistance to fungi and insects and moisture resistance can be achieved (see manufacturer's instructions) | |

Physical properties

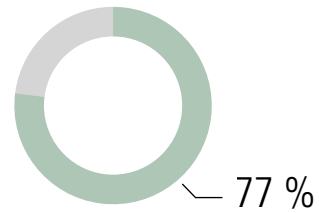
| | | |
|-------------------------------|---------------------------|--|
| Bulk density | 620-720 kg/m ³ | |
| Material moisture at delivery | ca. 8 % | |

Mechanical properties

| | | |
|--|-----------------------------|--|
| Compressive strength (σ_{dB}) | ca. 13-15 N/mm ² | |
| E-modulus (E_b) | ca. 1900 N/mm ² | |



2 Plywood



Tab. 2 A: Material data sheet, plywood, plywood, general⁴

| | |
|--------------------|--|
| Material group | Natural-synthetic material; wood-based materials; plywood; veneer panels |
| Name | Plywood (GB, US);Furnierplatten; Schichtholz; Kunstharzpressholz; Brettsperrholz; etc. (D) |
| Short name | FU |
| Manufactured in | France |
| Origin of the wood | France |
| Version | Maritime pine plywood, 24 mm, according to DIN 13986 |
| Use | Maritime pine plywood according to DIN 13986 for use according to DIN EN 1995-1-1/ Maritime pine plywood - according to DIN EN 636-3 |

⁴ KALWEIT, A., a.o. (2012) - Handbook of Technical Product Design, Materials and Manufacturing - Decision Bases for Designers and Engineers (2) Berlin: Springer-Verlag Berlin Heidelberg GmbH

Tab. 2 B: Material data sheet, plywood, plywood, specific⁵⁶**General description** (manufacturer spec.)

| | | |
|----------------------------|---|--|
| Certifications/Information | PEFC, E1 (EU), CE, BFU 100 | |
| Emission class | E1 | |
| Fire resistance | Fire behavior: according to DIN EN 13986: D-s2, d0, normal flammability, no burning dripping/falling off | |

General description (general)

| | | |
|-----------|--|--|
| Length | 2440 - 2800 mm | |
| Wide | 1220 - 1250 mm | |
| Thickness | 7 - 45 mm | |
| Color | Mostly light white yellowish rotary cut veneer (maritime pine) | |
| Texture | Plain, figured, smooth (top view), structure of several layers of veneer, smooth (cross section) | |

Basic materials/auxiliary materials

| | | |
|---------------|--|--|
| Veneer layers | From at least three layers (7 mm) to 17 layers (45 mm) | |
| Binder | DIN EN 314-2 gluing class 3, outdoor use | |

Life cycle assessment data plywood, average (GER) 6,33

| | | |
|--|----------------------|---|
| Resource input per kg | A1-A3 | |
| Total non-renewable primary energy (PENRT) | 6,8 MJ | 8 |
| Use of freshwater resources (FW) | 0,004 m ³ | 1 |

| | | |
|---|-------------------------------|----|
| Environmental impact per m³ | A1-A3 | |
| Global Warming Potential (GWP) | -1,5 Kg CO ₂ -eqv. | 10 |

Environmental impact Transport, per 1000 kgkm (590-600 kg/m³) 9**Production site: France/ZEITRAUM**

| | | |
|--|----------------------------------|---|
| Truck - ca. 1500 km | A4 | 8 |
| Total non-renewable primary energy (PENRT) | 1812 MJ | |
| Use of freshwater resources (FW) | 0,096 m ³ | |
| Global Warming Potential (GWP) | 134,535 Kg CO ₂ -eqv. | |

Main raw material origin: Central Europe/Production site

| | | |
|--|---------|----|
| Truck - ca. 1000 km | A4 | 10 |
| Total non-renewable primary energy (PENRT) | 1208 MJ | |

⁵ BMI 2021: Oekobaudat. Database <https://www.oekobaudat.de/no_cache/en/database/search.html> Accessed, on 10/27/2021⁶ WEZEL, O. (2019) - Strength properties of wood-based materials according to DIN EN 622 <<http://www.tischler-ole-welzel.de/Holzwerkstoffe/Faserplatten%20nach%20DIN%20EN%2013986.pdf>> Accessed, on 09/03/2019

| | | |
|----------------------------------|-----------------------------|--|
| Use of freshwater resources (FW) | 0,06388 m ³ | |
| Global Warming Potential (GWP) | 89,69 CO ₂ -eqv. | |

Sustainability Assessment

| | | |
|---|---|-------------|
| Longevity | Very durable/moderately repairable (> 20 years) | 9 |
| Biological reproduction/ recycled material | 90 % | 9 |
| Circulation potential | Only thermally recyclable | 4 |
| Socially compatible | Yes | 9 |
| Total average rating | | 7,72 |

Processing

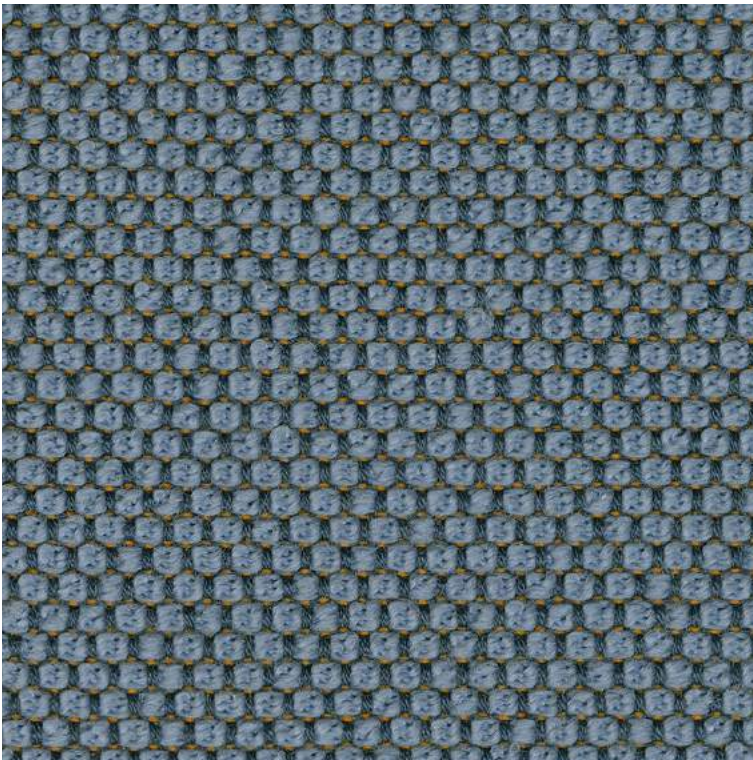
| | | |
|-------------------|---|--|
| Mechanical | Very good; can be sawed, drilled and milled with common machines | |
| Adhesion | Very good | |
| Surface finishing | good; varnishable; coating possible | |
| Durability | By changing the synthetic binder or adding further additives, an increase in fire resistance, resistance to fungi and insects and moisture resistance can be achieved (see manufacturer's instructions) | |

Physical properties

| | | |
|-------------------------------|-----------------------|--|
| Bulk density | 540 kg/m ³ | |
| Basis weight (18 mm) | n.a. | |
| Material moisture at delivery | ca. 8 % | |

Mechanical properties

| | | |
|---|----------------------------|--|
| Compressive strength (σ_{dB}) | ca. 22,5 N/mm ² | |
| Flexural strength (σ_{bB}) | ca. 15 N/mm ² | |
| Tensile strength ($\sigma_{zB} $) | ca. 13,5 N/mm ² | |
| Shear strength (τ_{aB}) (transverse to plate plane) | n.a. | |
| E-modulus ($E_b $) | ca. 5000 N/mm ² | |



3 Rohi, Opera

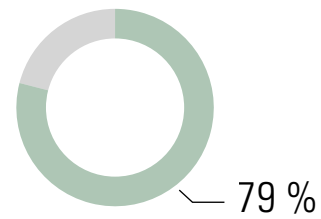


Fig. 3: www.rohi.com

Tab. 3 A: Material data sheet, Opera, general⁷

| | |
|-----------------------|---|
| Material group | Natural synthetic material; textiles; upholstery fabric; virgin wool, polyamide |
| Name | Opera |
| Material abbreviation | WV (virgin wool); PA (polyamide) |
| Manufacturer | Rohi, Germany (GER) |
| Manufactured in | Germany (GER) |
| Designer | Rohi |
| Version | 29 different colors |
| Use | Object areas and private living spaces with very high stresses |

⁷ ROHI (2021) - Rohi; Products <<https://www.rohi.com/en/products/living/>> Accessed, on 11/12/2021

Tab. 3 B: Material data sheet, Opera, specific⁸⁹

General description (manufacturer spec.)

| | | |
|--|--|------|
| Certifications/Information | RAL-UZ 117 2+3, IWTO Guidelines for Sheep Welfare, FR-free, AB2998 (US Export Norm), ISO 9001, REACH, CP65 (on request) | |
| Fire resistance | <p>Fire tests (without additional flame retardant finish): CAL TB 117 - 2013 • DIN EN 1021-1/-2 • BS 5852 Part 1: 1979 • UNI 9175 1 IM • ÖNORM B1/Q1 • IMO 2014/90/EU</p> <p>Fire tests (with optional flame retardant finish): BS 5852: 2006 Crib5 • DIN 4102-1 B2 • DIN EN 13501-1 E • FAR 25.853 12 sec. vertical • NF P92-507 M2</p> | |
| Environmental benefits | | |
| AZO dyes | Not contained | |
| Heavy metals | Not contained | |
| Formaldehyde | Not contained | |
| Brominated flame retardants | Not contained | |
| Spinning oil used | n.a. | |
| Appearance | | |
| Pattern | Solid | |
| Length | n.a. | |
| Width | 140 cm | |
| Thickness | n.a. | |
| Color | www.rohi.com; Differences may occur | |
| Textile surface | n.a. | |
| Basic materials | | |
| Virgin wool | 96 % | |
| Polyamide (Nylon) | 4 % | |
| LCA data comparator for Opera, Rohi (no data available) - Hero (96 % WV, 4 % PA), Kvadrat | | 5,33 |
| Resource use per m² | | |
| A1-A3 | | |
| Total non-renewable primary energy (PENRT) | 89 MJ | 7 |
| Use of freshwater resources (FW) | 0,34 m ³ | 4 |
| Environmental impact per m² | | |
| A1-A3 | | |
| Global Warming Potential (GWP) | 7,3 Kg CO ₂ -eqv. | 5 |
| Environmental impact Transport, per 1000 kgkm (0.870 kg/m) | | 5 |

⁸ ROHI (2021) - Rohi; Products <<https://www.rohi.com/en/products/living/>> Accessed, on 11/12/2021

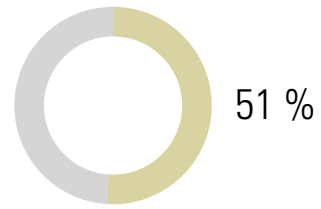
⁹ BMI 2021: Oekobaudat. Database <https://www.oekobaudat.de/no_cache/en/database/search.html> Accessed, on 10/27/2021

| Production site: Germany/ZEITRAUM | | |
|--|---|-------------|
| Truck - < 100 km | A4 | 10 |
| Total non-renewable primary energy (PENRT) | 120,8 MJ | |
| Use of freshwater resources (FW) | 0,006388 m ³ | |
| Global Warming Potential (GWP) | 8,969 Kg CO ₂ -eqv. | |
| Main raw material origin: Australia/production site | | 0 |
| Truck - ca. 2000 km | A4 | |
| Total non-renewable primary energy (PENRT) | 2416 MJ | |
| Use of freshwater resources (FW) | 0,12776 m ³ | |
| Global Warming Potential (GWP) | 179,38 Kg CO ₂ -eqv. | |
| Container ship - ca. 10000 km | A4 | |
| Total non-renewable primary energy (PENRT) | 1094 MJ | |
| Use of freshwater resources (FW) | 0,005636 m ³ | |
| Global Warming Potential (GWP) | 90,11 Kg CO ₂ -eqv. | |
| Sustainability Assessment | | |
| Longevity | Very durable/moderately repairable (> 20 years) | 9 |
| Biological reproduction/ recycled material | 96 % | 10 |
| Circulation potential | 70 - 99 % technological/recycling | 8 |
| Socially compatible | Yes | 10 |
| Total average rating | | 7,88 |
| Resistance to dirt | Not sensitive to dirt | |
| Physical properties | | |
| Weight | ca. 1010 g/m | |
| Mechanical properties | | |
| Resilience | 90.000 Martindale | |
| Pilling (ISO1-5) | min. 4 - 5 | |
| Light fastness (ISO 1-5) | min. 5 - 8 | |
| Seam slippage | n.a. | |
| Care | | |
| Washing | Professional cleaning recommended | |
| Chlorine | Do not bleach | |
| Drying drum | Do not dry | |

| | | |
|--------------|-----------------------------------|--|
| Ironing | Moderate hot ironing | |
| Dry cleaning | Professional cleaning recommended | |



4 PUR flexible foam, (MDI)



Tab. 4 A: Material data sheet, PUR flexible foam, general¹⁰

| | |
|-----------------------|--|
| Material group | Synthetic Material; Synthetic Upholstery Material |
| Name | Polyurethane Foam (GB); Polyurethan Weichschaum (D); |
| Material abbreviation | PUR foam |
| Manufactured in | Germany (GER) |
| Use | Automotive industry (upholstery, fittings); furniture upholstery; shoe soles; etc. |

¹⁰ KALWEIT A. (2012) - Handbook of technical product design - materials and manufacturing. Berlin: Springer Verlag

Tab. 4 B: Material data sheet, PUR flexible foam, specific^{11,12}

General description (manufacturer spec.)

| | | |
|--|-------------------------------------|------------|
| Certifications/Information | OEKO-TEX® STANDARD 100, REACH, CP65 | |
| Fire resistance | CAL117 on request (CMHR foam) | |
| Delivery form | Bales, flakes, mats, etc. | |
| Texture | soft, porous | |
| Color | Available in all colors | |
| Life cycle assessment data Comparative material for PUR flexible foam (no data available) - PU slabstock foam insulation panels (GER) | | 3 |
| Resource input per kg | A1-A3 | |
| Total non-renewable primary energy (PENRT) | 98,5 MJ | 0 |
| Use of freshwater resources (FW) | 0,028696 m ³ | 9 |
| Environmental impact per kg | A1-A3 | |
| Global Warming Potential (GWP) | 4,48 Kg CO ₂ -eqv. | 0 |
| Environmental impact Transport, per 1000 kgkm (approx. 75 kg/m³) | | 6,5 |
| Production site: Germany/ZEITRAUM | | |
| Truck - ca. 500 km | A4 | 10 |
| Total non-renewable primary energy (PENRT) | 430,3 MJ | |
| Use of freshwater resources (FW) | 0,030265 m ³ | |
| Global Warming Potential (GWP) | 32,055 Kg CO ₂ -eqv. | |
| Main raw material origin: n.a./production site | | 3 |
| n.a. - ø > 7000 km | A4 | |
| Total non-renewable primary energy (PENRT) | 8456 MJ | |
| Use of freshwater resources (FW) | 0,44716 m ³ | |
| Global Warming Potential (GWP) | 627,83 Kg CO ₂ -eqv. | |
| Sustainability Assessment | | |
| Longevity | Durable (10 - 20 years) | 5 |
| Biological reproduction/ recycled material | 0 % | 0 |
| Circulation potential | 70 - 99 % technological/downcycling | 7 |

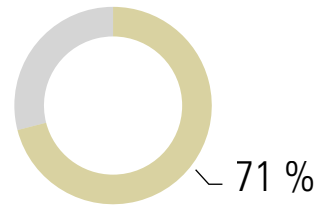
¹¹ BMI 2021: Oekobaudat. Database <https://www.oekobaudat.de/no_cache/en/database/search.html> Accessed, on 10/27/2021.

¹² MATERIALARCHIV (2019) - Materialarchiv <<http://www.materialarchiv.ch/app-tablet/#search>> Accessed, on 03/01/2019

| | | |
|---|---|-------------|
| Socially compatible | Yes | 9 |
| Total average rating | | 5,08 |
| Resistance to dirt | Not sensitive to dirt | |
| Physical properties (Type 75140) | | |
| Weight | ca. 75 kg/m ³ | |
| Compression hardness (DIN 53577/ISO3386) | 14,5 kpa | |
| Indentation hardness (40 %; DIN 53576 B/ISO2439-B) | 560 N | |
| Compression set test (50 %, 70 °C, 22 h; DIN 53572) | 1,0 % | |
| Rebound elasticity (UNI 6457-ASTM D-3574) | 56 % | |
| Mechanical properties (Type 75140) | | |
| Tensile strength (DIN 53571/ISO 1798) | 220 Kpa | |
| Fatigue test (UNI 6356 Pt. 2) | 20 % | |
| Thermal properties | | |
| Continuous operating temperature | ca. -40 bis 100 °C | |
| Notes | MDI: methylene diphenyl isocyanate; chemical compounds from the group of aromatic isocyanates | |



5 Polyester fibers



Tab. 5 A: Material data sheet, polyester fibers, general¹³

| | |
|-----------------------|---|
| Material group | Synthetic Material; Synthetic Upholstery Material |
| Name | Polyester Fibers (GB); Polyesterfaser (D) |
| Material abbreviation | PES |
| Manufactured in | Germany (GER) |
| Use | Furniture upholstery |

¹³ KALWEIT A. (2012) - Handbook of technical product design - materials and manufacturing. Berlin: Springer Verlag

Tab. 5 B: Material data sheet, polyester fibers, specific¹⁴¹⁵**General description**

| | | |
|----------------------------|--|--|
| Certifications/Information | REACH, OEKO-TEX® STANDARD 100, DIN EN ISO 9001, DIN EN ISO 14001, DIN EN ISO 50001, CP65 | |
| Fire resistance | BS 5852 Part 2, CAL117 | |
| Delivery form | Mats, wadding, etc. | |
| Texture | soft, fibrous | |
| Color | Available in all colors | |

| | | |
|---|--|---|
| Life cycle assessment data Comparative material for PE wadding (no data available) - PE nonwoven (GER) | | 9 |
|---|--|---|

| | | |
|------------------------------|--------------|--|
| Resource input per kg | A1-A3 | |
|------------------------------|--------------|--|

| | | |
|--|-------|---|
| Total non-renewable primary energy (PENRT) | 22 MJ | 8 |
|--|-------|---|

| | | |
|----------------------------------|------------------------|----|
| Use of freshwater resources (FW) | 0,00252 m ³ | 10 |
|----------------------------------|------------------------|----|

| | | |
|------------------------------------|--------------|--|
| Environmental impact per kg | A1-A3 | |
|------------------------------------|--------------|--|

| | | |
|--------------------------------|-------------------------------|---|
| Global Warming Potential (GWP) | 0,73 Kg CO ₂ -eqv. | 8 |
|--------------------------------|-------------------------------|---|

| | | |
|---|--|-----|
| Environmental impact Transport, per 1000 kgkm (approx. 0.5 kg/m²) | | 6,5 |
|---|--|-----|

| | | |
|--|--|--|
| Production site: Germany/ZEITRAUM | | |
|--|--|--|

| | | |
|---------------------------|----|----|
| Truck - ca. 500 km | A4 | 10 |
|---------------------------|----|----|

| | | |
|--|----------|--|
| Total non-renewable primary energy (PENRT) | 430,3 MJ | |
|--|----------|--|

| | | |
|----------------------------------|-------------------------|--|
| Use of freshwater resources (FW) | 0,030265 m ³ | |
|----------------------------------|-------------------------|--|

| | | |
|--------------------------------|---------------------------------|--|
| Global Warming Potential (GWP) | 32,055 Kg CO ₂ -eqv. | |
|--------------------------------|---------------------------------|--|

| | | |
|---|--|---|
| Main raw material origin: n.a./production site | | 3 |
|---|--|---|

| | | |
|------------------------------|----|--|
| n.a. - ø > 7000 km | A4 | |
|------------------------------|----|--|

| | | |
|--|---------|--|
| Total non-renewable primary energy (PENRT) | 8456 MJ | |
|--|---------|--|

| | | |
|----------------------------------|------------------------|--|
| Use of freshwater resources (FW) | 0,44716 m ³ | |
|----------------------------------|------------------------|--|

| | | |
|--------------------------------|---------------------------------|--|
| Global Warming Potential (GWP) | 627,83 Kg CO ₂ -eqv. | |
|--------------------------------|---------------------------------|--|

Sustainability Assessment

| | | |
|-----------|---------------------------|---|
| Longevity | Very durable (> 20 years) | 8 |
|-----------|---------------------------|---|

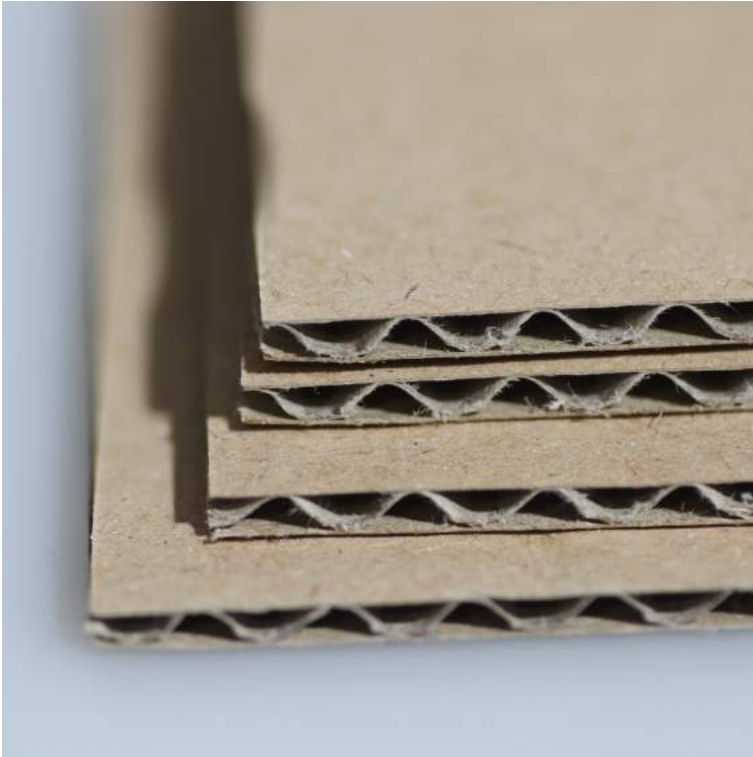
| | | |
|---|-----|---|
| Biological reproduction/ recycled material | 0 % | 0 |
|---|-----|---|

| | | |
|-----------------------|-----------------------|----|
| Circulation potential | 100 % (technological) | 10 |
|-----------------------|-----------------------|----|

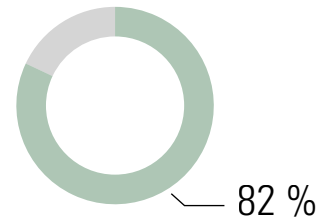
¹⁴ BMI 2021: Oekobaudat. Database <https://www.oekobaudat.de/no_cache/en/database/search.html> Accessed, on 10/27/2021

¹⁵ MATERIALARCHIV (2019) - Materialarchiv <<http://www.materialarchiv.ch/app-tablet/#search>> Accessed, on 03/01/2019

| | | |
|-----------------------------|--|-------------|
| Socially compatible | Yes | 9 |
| Total average rating | | 7,08 |
| Resistance to dirt | Not sensitive to dirt | |
| Properties | | |
| Density | 1380 kg/m ³ | |
| Acid resistance | Conditionally resistant to organic and mineral acids | |
| Moisture absorption | 0,2 to 0,5 % | |
| Thermal properties | | |
| Softening temperature Vicat | ca. 230 °C to 240 °C | |
| Melting point/range | 250 °C | |



6 Cardboard, beds, tables & storage



Tab. 6 A: Cardboard, beds, tables & storage, general

| | |
|-----------------|---|
| Material group | Packaging |
| Name | Cardboard (GB, US); Karton (D) |
| Manufacturer | Monowell GmbH & Co. KG |
| Manufactured in | Germany (GER) |
| Use | Packing material for individual wrapping of the furniture |

Tab. 6 B: Cardboard, beds, tables & storage, specific¹⁶¹⁷

General description

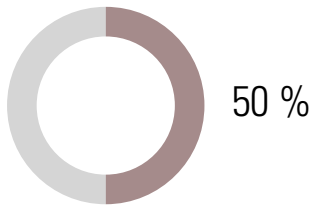
| | | |
|--|--|-----------|
| Certifications/Information | ISO 9001, ISO 50001, ISO 22000 DE, ISO 22000 EN, FSC | |
| Color | Brown | |
| Texture | matt | |
| Contents | | |
| 60 % | Recycled paper | |
| 40 % | Primary raw material | |
| Life cycle assessment data „Kraftpapier“ (GER) | | 10 |
| Resource input per kg | A1-A3 | |
| Total non-renewable primary energy (PENRT) | 5,888 MJ | |
| Use of freshwater resources (FW) | 0,004899 m ³ | |
| Environmental impact per kg | A1-A3 | |
| Global Warming Potential (GWP) | -0,8973 Kg CO ₂ -eqv. | |
| Environmental impact Transport, per 1000 kgkm | | 9 |
| Production site: Germany/ZEITRAUM | | |
| Truck - ca. 200 km | A4 | 10 |
| Total non-renewable primary energy (PENRT) | 172,12 MJ | |
| Use of freshwater resources (FW) | 0,012106 m ³ | |
| Global Warming Potential (GWP) | 12,822 Kg CO ₂ -eqv. | |
| Main raw material origin: Germany, Central Europe/Production site | | |
| Truck - ca. 1500 km | A4 | 8 |
| Total non-renewable primary energy (PENRT) | 1812 MJ | |
| Use of freshwater resources (FW) | 0,09582 m ³ | |
| Global Warming Potential (GWP) | 134,535 Kg CO ₂ -eqv. | |
| Sustainability Assessment | | |
| Longevity | Moderately durable/repairable (< 10 years) | 4 |
| Biological reproduction/ recycled material | 60 % | 6 |
| Circulation potential | 100 % (technological) | 10 |

¹⁶ BMI 2021: Oekobaudat. Database <https://www.oekobaudat.de/no_cache/en/database/search.html> Accessed, on 10/27/2021

¹⁷ MATERIALARCHIV (2019) - Materialarchiv <<http://www.materialarchiv.ch/app-tablet/#search>> Accessed, on 03/01/2019

| | | |
|-----------------------------|-------------|-------------|
| Socially compatible | Yes | 10 |
| Total average rating | | 8,16 |
| Disposal note | Waste paper | |

7 PE foil



Tab. 7 A: Material data sheet, PE foil, general

| | |
|-----------------------|---------------------------------|
| Material group | Packaging |
| Material abbreviation | PE foil (polyethelene) |
| Manufactured in | Germany (GER) |
| Use | Packing material for protection |

Tab. 7 B: Material data sheet, PE foil, specific¹⁸¹⁹

General description

| | | |
|--|---------------------------------|-----------|
| Certifications/Information | n.a. | |
| Life cycle assessment data Comparative material for PE foil (no data available) (GER) | | 5 |
| Resource input per kg | A1-A3 | |
| Total non-renewable primary energy (PENRT) | n.a. | |
| Use of freshwater resources (FW) | n.a. | |
| Environmental impact per kg | A1-A3 | |
| Global Warming Potential (GWP) | n.a. | |
| Environmental impact Transport, per 1000 kgkm (approx. 0.5 kg/m²) | | 6 |
| Production site: Germany/ZEITRAUM | | |
| Truck - ca. 1000 km | A4 | 9 |
| Total non-renewable primary energy (PENRT) | 430,3 MJ | |
| Use of freshwater resources (FW) | 0,030265 m ³ | |
| Global Warming Potential (GWP) | 32,055 Kg CO ₂ -eqv. | |
| Main raw material origin: n.a./production site | | 3 |
| n.a. - ø > 7000 km | A4 | |
| Total non-renewable primary energy (PENRT) | 8456 MJ | |
| Use of freshwater resources (FW) | 0,44716 m ³ | |
| Global Warming Potential (GWP) | 627,83 Kg CO ₂ -eqv. | |
| Sustainability Assessment | | |
| Longevity | Not durable (< 3 years) | 0 |
| Biological reproduction/ recycled material | 0 % | 0 |
| Circulation potential | 100 % (technological) | 10 |
| Socially compatible | Yes | 9 |
| Total average rating | | 5 |
| Disposal note | Recyclable waste | |

¹⁸ BMI 2021: Oekobaudat. Database <https://www.oekobaudat.de/no_cache/en/database/search.html> Accessed, on 10/27/2021

¹⁹ MATERIALARCHIV (2019) - Materialarchiv <<http://www.materialarchiv.ch/app-tablet/#search>> Accessed, on 03/01/2019

Information on all materials used by ZEITRAUM
can be found in our material library at:

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